

REMARKS

Claims 1, 11, and 21 have been amended herein. The limitations of claims 6, 16, and 26 have now been incorporated in claims 1, 11, and 21, respectively. Claims 6, 16, and 26 have been canceled. Claims 1-4, 8-14, 18-24, and 28-30 are currently pending. No new matter has been added to the claims.

Applicant thanks the Examiner for the courtesy extended to the undersigned during the telephone interview conducted on December 2, 2008. Pursuant to the telephone interview, Applicant brought to the Examiner's attention the fact that previously amended claims 6, 16, and 26 were not examined.

CLAIM REJECTIONS UNDER 35 U.S.C. § 103(a)

Independent Claims 1, 11, and 21

The Office Action rejects independent claims 1, 11, and 21 under 103(a) as unpatentable over U.S. Patent App. Pub. No. 2004/007854 to *Cirne et al.* ("*Cirne*"), in view of U.S. Patent No. 7,089,460 to *Fu* ("*Fu*"), and further in view of U.S. Patent No. 6,658,652 to *Alexander III et al.* ("*Alexander*").

Claims 1, 11, and 21 as amended are patentable over *Cirne* in view of *Fu*. Claims 1, 11, and 21 recite, in part:

“...generating a statistics report including the generated stack walkback for the at least one identified software object, wherein said statistics report includes a notation for one or more software object classes that have instance counts that have grown by a factor of ten or more since a time period from when said software object classes are first reported within said statistics report...” (*underlined emphasis added*)

However, neither *Cirne*, *Fu*, *Alexander* nor their combination teach or suggest the idea of a statistics report including a notation for one or more software object classes having instance counts that have grown by a factor of ten or more since a time period from when software object classes are first reported within the statistics report.

Cirne teaches that an operator of a system is able to set various configuration values in a configuration file. The configuration file includes a sensitivity value that determines how sensitive the tool will be to potential leaks. Based on the sensitivity value given, the system determines a sensitivity counter value and a growth factor. (See *Cirne*, ¶¶0047] and Table 2). However, *Cirne* merely describes arbitrary growth factor values when comparing the size of a collection representing a group of objects (called a “collection”):

“The lower the sensitivity counter, the more likely the collection will be reported as a potential source of a leak. The greater the sensitivity setting, the lower the sensitivity counter. Thus, a higher sensitivity setting will identify more potential leaks. In general, the heuristics looks to see if the threshold value has been changed X times, where X is the value of the sensitivity counter. Once the threshold value has been changed X times, the collection, the collection is considered to be a potential source of a memory leak.” (*Cirne*, ¶¶0061])

Thus, the teachings in *Cirne* suggest that there is an arbitrarily-set, sliding scale of thresholds based on the sensitivity setting that is arbitrarily set to the system (See *Cirne*, Table 2).

Moreover, *Cirne* does not disclose that its log file (assuming a log file were equivalent to Applicants’ statistics report, which Applicant submits it does not) includes a notation for at least one software object class that has an instance count that has grown by a factor of ten or more since a time period from when the software object classes are first reported within the statistics report, as recited in amended claims 1, 11, and 21.

Moreover, *Fu* also fails to teach or suggest the idea of a statistics report including a notation for one or more software object classes having instance counts that have grown by a factor of ten or more since a time period from when software object classes are first reported within the statistics report. At best, *Fu* discloses a particular type of threshold for determining whether a memory leak exists. However, such a threshold in *Fu* is measured differently than recited by Applicant’s claims 1, 11, and 21 (see *Fu*, Abstract). According to *Fu*, if less than four memory usage data minima points are present after taking the second derivative of the minima point data, a memory leak exists (see *Fu*, FIG. 6).

Alexander also fails to make up for the deficiencies present in *Cirne* and *Fu*. For example, *Alexander* describes a call stack tree which reflects call stacks observed during a

specific example of system execution. At each node in the call stack tree, several statistics are recorded:

- 1.) the number of distinct times the call stack is produced,
- 2.) the sum of the time spent in the call stack,
- 3.) the total time spent in the call stack plus the time in those call stacks invoked from this call stack (referred to as cumulative time), and
- 4.) the number of instances of a routine above a particular instance (indicating a recursion depth)

While *Alexander* teaches that “recursion depth” is one of the four listed criteria that is measured, it should be noted that statistics 1.) through 4.) in *Alexander* are all specifically stated to be “time-based statistics” (*Alexander*, col. 17, lines 26-37).

In addition, even if one could assume that the measurement of recursion depth (criteria 4.)) were equivalent to Applicant’s measure of an object’s instance count growth, *Alexander* fails to provide a notation for one or more software object classes that have instance counts that have grown by a factor of ten or more since a time period from when the software object classes are first reported within a statistics report, as recited in Applicant’s amended claims 1, 11, and 21. In this regard, *Alexander* makes no reference to a specific threshold for recursion depth, which would imply that such a threshold, if existing, is arbitrarily set.

Since *Cirne*, *Fu*, and *Alexander* independently fail to teach or suggest the newly added limitations recited in claims 1, 11, and 21, the references cannot be properly combined for purposes of §103(a) to teach or suggest Applicant’s claimed invention.

Dependent Claims 10, 20, and 30

The Office Action rejects dependent claims 10, 20, and 30 under 103(a) as unpatentable over *Cirne*, in view of *Fu*, further in view of *Alexander*, and further still in view of U.S. Patent No. 6,189,141 to *Benitez et al.* (“*Benitez*”).

Claim 10 (and similarly claims 20 and 30) recite, in part:

“upon determining that the amount of available memory for the software program referencing the software objects is within the predetermined threshold amount of memory from zero memory available for the software program utilizing the software objects, storing a current stack walkback of currently referenced software objects prior to the amount of available memory for the software program referencing software objects dropping below an amount of available memory necessary to store the current stack walkback.”

The Examiner has cited *Benitez* to assert that the reference teaches the above cited limitation. However, Applicant respectfully disagrees. *Benitez* teaches that when an overflow condition is present (i.e., a hot trace storage area is becoming full), cold traces within the hot trace storage area are removed to make storage space for additional hot traces; see col. 35, lines 29-40 of *Benitez*). *Benitez* does not teach storing a current stack walkback when it is determined that the amount of available memory is within a threshold, as recited in claims 10, 20 and 30. Thus, in *Benitez*, the cold traces that were previously stored in the hot storage area are not stored. Rather, the cold traces are removed altogether, according to *Benitez*.

Dependent Claims 2-4, 8, 9, 12-14, 18, 19, 22-24, 28, and 29

The Office Action rejects dependent claims 2-4, 8, 9, 12-14, 18, 19, 22-24, 28, and 29 under 103(a) as unpatentable over U.S. Patent App. Pub. No. 2004/007854 to *Cirne et al.* (“*Cirne*”), in view of U.S. Patent No. 7,089,460 to *Fu* (“*Fu*”), and further in view of U.S. Patent No. 6,658,652 to *Alexander III et al.* (“*Alexander*”). In response, Applicant respectfully submits that the abovementioned claims are allowable at least by virtue of their dependence upon allowable base claims 1, 11, or 21.

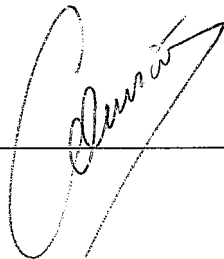
CONCLUSION

Since nothing in *Cirne, Fu, Alexander, Benitez* or their combination teaches or suggests the foregoing newly added limitations in amended claims 1, 11, and 21, it follows that the grounds for rejecting claims 1-30 and all the pending claims depending therefrom have been overcome. Based on the above amendments and these remarks, reconsideration of pending claims 1-4, 8-14, 18-24, and 28-30 is respectfully requested.

The Examiner's prompt attention to this matter is greatly appreciated. Should further questions remain, Applicant invites the Examiner to contact the undersigned attorney of record at (512) 343-6116 if such would further or expedite the prosecution of the present Application.

The Commissioner is authorized to charge any underpayment or credit any overpayment to IBM CORPORATION Deposit Account No. **09-0447** for any matter (except for extensions of time which shall be charged to DILLON & YUDELL Deposit Account **50-3083**) in connection with this response.

Respectfully submitted,



Carlos E. Amorín
Reg. No. 48,379
DILLON & YUDELL LLP
8911 North Capital of Texas Highway, Ste. 2110
Austin, Texas 78759
Telephone (512) 343-6116
Facsimile (512) 343-6446

ATTORNEY FOR APPLICANT